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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,240	08/24/2001	Vincent Botteau		2045

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EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,240

Applicant(s)

BOTTREAU ET AL.

Examiner

Shawn S. An

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. As per Applicants' instruction as filed on 12/08/04, claim 3 has been newly added.

Response to Remarks

2. Applicants' remarks filed on 12/08/04 have been fully considered but they are not persuasive.

The Applicants present arguments of which the Applicants fail to understand A) the recited "Note" in item 3 of the Office action; B) motivation for claim 1 rejection, and motivation for combining the cited prior art references; and C) the recited "... the technique can be applied during each encoding step." (Applicants: page 3, lines 2-3).

However, after careful scrutiny of the cited prior art references and the Examiner's last Office action, the Examiner must respectfully disagree, and maintain the grounds of rejection for the reasons that follow.

In response to argument A), Puri et al clearly discloses the base layer (Fig. 1B, 110, Prior Art) and the enhancement layer (Fig. 2B, 520). Further, it is conventionally well known for a typical video encoder to include a base layer and an enhancement layer encoding processes.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art to combine Puri et al's base layer and enhancement layer so as to generate from the difference between the current image and the reconstructed image, a new error residual image for refining the mesh (Mesh 1 from Fig. 1B, 110) towards a new mesh (Mesh 2 from 520) then taken as input for a further level, the information concerning the mesh distortion being contained in motion vector MV1 of the element 110 as an alternative efficient way to improve the quality of a scalable encoding process.

Henceforth, by virtue of combining the base layer and the enhancement layer, the claimed limitation "... generating from the difference between the current image and the reconstructed image, a new error residual image for refining the current level mesh

towards a new mesh then taken as input for a further level, the information concerning the mesh distortion being contained in motion vector MV1 ..." has now been met by Puri et al's reference.

In response to argument B), Puri et al discloses all of the claimed limitations with the exception of forming at least another enhancement layer by performing respective receiving and generating operations, and the matching pursuit method being applied during each encoding step to the error residual image in view of the image texture information in the form of atoms.

However, merely adding another (identical) enhancement layer performing substantially the same function as original enhancement layer does not hold much patentable weight, especially when the claim limitation "... at least another enhancement layer ... generating operations;" is written with such a broad sense. Furthermore, it is considered an obvious feature or a design choice for further enhancing the encoding/decoding process by merely adding an additional identical layer (device) to the original layer (device), thereby upgrading the quality of the video images.

Furthermore, Zakhor et al clearly teaches the matching pursuit technique (Fig. 1, 60) which can be applied to the error residual (50) image in view of the transmission of image information in the form of atoms (col. 9, lines 16-22; Col. 12, lines 11-25).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing the encoding method as taught by Puri et al to incorporate the matching pursuit method as taught by the Zakhor et al so that the matching pursuit method can be applied during each encoding step to the error residual image in view of the image texture information in the form of atoms, thereby reducing an error in the residual signal, thereby significantly improving the quality of a scalable encoding process.

Moreover, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one

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of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In response to argument C), the Applicants do not seem to believe the idea of “the technique can be applied during each encoding step” comes from the cited prior art references. Perhaps, the Examiner was not being clear on the idea recited as above. As discussed above, Zakhor et al clearly teaches the matching pursuit technique (Fig. 1, 60) which can be applied to the error residual (50) image in view of the transmission of image information in the form of atoms (col. 9, lines 16-22; Col. 12, lines 11-25).

Further, the claimed limitation “the technique” (matching pursuit) is taught by the Zakhor et al, and the claimed limitation “... during each encoding step” is taught by the Puri et al. By virtue of combining the claimed limitations, the Examiner implied that since Zakhor et al teaches the matching pursuit technique (Fig. 1, 60), it certainly would have been obvious that the matching pursuit technique can be applied during each encoding step to the error residual image, since matching pursuit algorithm is at least designed to reduce an error in the residual signal, thereby improving the quality of a scalable encoding process.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Puri et al (6,148,026) in view of Zakhor et al (5,699,121) as previously discussed in the last Office action.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Puri et al (6,148,026) in view of Zakhor et al (5,699,121)

Regarding claim 3, Puri et al discloses a scalable video encoder comprising, for allowing a progressive transmission of information:

a base layer circuit (Fig. 2B, 510) for receiving an input stream of video images and generating compressed base layer video data for transmission to a video decoder;

at least an enhancement layer circuit (520) generating enhancement layer video data associated with the base layer video data for transmission to a video decoder, wherein the encoder is configured for encoding based on a triangular mesh representation (Fig. 3), wherein the encoding comprising the acts of:

receiving a couple of reference and current images N-1 and N and a coarse mesh (Fig. 1B, 110; col. 2, lines 32-64);

receiving the current image (VIDEO) and a reconstructed image (Decoded VOPS) obtained by adding to the MC image the motion residual image reconstructed from the coded error residual image, and generating from the difference between the current image and the reconstructed image, a new error residual image for refining the current level mesh (Fig. 2B, 510 to 520), then taken as input for a further level, the information concerning the mesh distortion being contained in motion vector MV1.

Puri et al does not particularly disclose another enhancement layer by performing respective receiving and generating operations, and the matching pursuit method being applied during each of the encoding acts to the error residual image in view of the image texture information in the form of atoms.

However, merely adding (forming) at least another (identical) enhancement layer performing substantially the same function as original enhancement layer does not hold much patentable weight, especially when the claim limitation " ... forming at least ... generating operations" is written with such a broad sense. Furthermore, it is considered an obvious feature or a design choice for further enhancing the encoding/decoding process by merely forming an additional identical layer (device) to the original layer (device), thereby upgrading the quality of the video images.

Further, it is conventionally well known for a video encoder to comprise a base layer encoding process and an enhancement layer encoding process.

Moreover, Zakhor et al teaches the matching pursuit method (Fig. 1, 60) which can be applied to the error residual (50) image in view of the transmission of image information in the form of atoms (col. 9, lines 16-22; Col. 12, lines 11-25).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing the encoding method as taught by Puri et al to adapt the matching pursuit method as taught by the Zakhor et al so as to encode by means of a matching pursuit method the error residual signal between the current image and the MC image, thereby forming a base layer, so that the matching pursuit method can be applied during each of the acts to the error residual image in view of the transmission of image texture information in the form of atoms, thereby reducing an error in the residual signal, thereby significantly improving the quality of a scalable encoding process.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S. An* whose telephone number is 571-272-7324.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SHAWN AN
PRIMARY EXAMINER

5/6/05